

REMARKS

Reconsideration and allowance of the application on the basis of the foregoing arguments, amendments, and for other reasons; and withdrawal of the FINAL REJECTION; are respectfully requested.

Twenty claims were pending in the application. All were rejected.

Claims 1, 2, 4, 5, 7, 15, 16, and 18 were rejected under 35 USC 103(a) as being unpatentable over Berger et al (5,526,421), and further in view of Matouk et al (5,625,684). The Examiner stated that "Berger discloses a device for a telephone ... comprising an electrical voice transmission system and an electrical transmission line ..."; "... microphone 13 ... to pickup voice and deliver it to a transmission line"; "... remote transmission block 22 ..."; "... speakers 14 near microphone 13 for providing a voice cancellation sound, ... and signal processor 20 ... that receives an input from the transmission line (from telephone mouthpiece13); and provides output to speakers 14 ... to generate a voice cancellation sound. The Examiner then observes that "Berger does not disclose that the processor outputs a signal to a modulator ... to subtract the electrical voice cancellation sound that is picked up by the microphone".

\ The Examiner then stated that "Matouk teaches a system of active noise suppression in which environmental noise at a callers telephone is detected and a cancellation signal is generated by a processor to subtract (using modulator 52) the noise from the signal received by the recipient of the call ..."; that the "'noise' mentioned by Matouk is any signal besides the direct speech from the caller to the handset microphone"; that the "'voice cancellation sound' being output in Berger's device would be considered 'noise' by the telephone handset microphone as it did not come directly from the caller"; and that as "such, it would have been obvious to one of ordinary skill in the art at the time of this application to use the detected noise signal (the voice cancellation signal is 'detected' by the signal processor) to cancel out the noise from the signal being sent to the recipient (called party) for the purpose of improving the called party's ability to understand the caller's voice".

Applicants urge that the Examiner's proposal to modify Berger according to Matouk is forbidden! Incorporation of Matouk's idea in Berger would render Berger ineffective for his intended purpose. Berger's intended purpose is to cancel the user's voice (oral) so that he or she is not overheard by someone nearby. But Matouk teaches freezing the adaptive algorithm as soon as the caller (user) speaks (col.4, lines3-13). Thus, the mirror-image waveform necessary to generate Berger's cancellation signal would no longer be formed, and hence Berger's proposed oral voice cancellation would be nullified.

Moreover Matouk's proposal to transmit a less corrupted voice signal would be defeated as Matouk's modification would react to the initial aspects of Berger's voice cancellation signal to modify the transmitted voice signal.

As noted in the February 23, 2004 amendment, the destructive modification of one device to anticipate another was declared improper in *Ex Parte Johnson*, 17 USPQ 374 (1932): "Where modification of the structure shown by a reference to meet the claims of applicant's application would require reconstruction of the device by removing parts that are essential for the intended operation and by substituting others which were not contemplated, rejection of the claims on such a reference is not sound." See also *Johnson v. Tvedt*, 244 F. 189, which held: "In order to constitute anticipation of a patented invention, it is not sufficient that the device relied upon might with some change be made to accomplish the function performed by that invention if it were not designed by its maker to accomplish it or actually used for its accomplishment."

Reviewing the prior art further, Berger is missing the idea of canceling out the residual effect of the voice cancellation process on the transmitted voice. Berger does have the general concept of canceling a person's voice orally; but failed to realize that in attempting to cancel the person's voice you would introduce an effect on the transmitted voice.

Matouk's whole idea is to cancel background noise from the transmitted voice signal. So if his speaker is standing in a noisy airport, the person receiving wont hear all the background airport noise.

Matouk measures the noise while the person is not speaking. Matouk has a "voice activity detector" which detects when a person is speaking. When a

person starts speaking, the signal processor using the sensor signal is frozen - basically his signal processor is not using the speaking person's voice with the noise. In other words, Matouk measures the background noise when the person is not speaking, creates an inverted signal, and subtracts this from the transmitted voice and noise signal.

Another problem with using Matouk's noise cancellation approach is the difficulty of measuring the effect of the cancellation signals separate of the corrupted voice. In typical noise cancellation system, a means (like Matouk's) of measuring the noise separate of the good signal is employed. As in Matouk's system they measure the background noise ONLY when the person is not speaking. If the noise is changing very quickly, Matouk's approach won't work well, particularly if a lot of talking is taking place. In Berger's voice cancellation system, you really can't use Matouk's approach and measure the effect of the cancellation signals separate of the true voice signal. Applicants do this within the signal processing software, not by separate sensor measurement which would not work.

Combining Berger and Matouk", you would cancel the "true" voice along with the noise; you would still not have applicants' invention! Applicants' device accommodates voice cancellation noise with respect to the transmitted voice.

Applicants submit that it would is not obvious that you could adjust the signal in a cancellation system. The way phones work now, you hear your voice both via the ear piece speaker and the transmission of your voice through the air. In applicants' device, the through the air part is being removed as well as the picked-up electrical signal of the means for doing that.

Applicants further submit that Matouk's teachings thus do not make it obvious to use the detected voice cancellation signal to cancel it from the signal being sent to the recipient (called party) for the purpose of improving the called party's ability to understand the caller's voice.

Combining Matouk and Berger's solutions, without the benefit of applicant's teachings, will not result in applicants' claimed device. Matouk merely cancels far field noise; Berger merely cancels far field signals based on local

measurement; these are two different and antithetical things. The antithetical principles of operation and the absence of any teaching or suggestion to combine the two references demonstrate that there is no basis for the obviousness conclusion. *Uniroyal v. Rudkin-Wiley*, 837 F.2d 1044, 5 USPQ2d 1434 (Jan. 13, 1988).

Moreover, "It is wrong to use the patent in suit [application here] as a guide through the maze of prior art references, combining the right reference in the right way so as to achieve the result of the claims in suit [application here]. Monday morning quarterbacking is quite improper when resolving the question of nonobviousness in a court of law." *Orthopedic Equipment v. United States*, 702 F.2nd 1005, at 1012, 217 USPQ 193, at 199 (Mar. 11, 1983).

The claims already recite structure defining applicants' unique contribution to the art. For example, claim 1 required "a signal processor receiving input from the transmission line before the modulator and providing output to the speaker to generate a voice cancellation sound and to the modulator to subtract from the transmission line downstream thereof the electrical voice cancellation sound signal picked up before by the microphone". The prior art does not even teach using a signal processor to provide output to a speaker to generate a voice cancellation sound and to a transmission line to subtract therefrom the electrical voice cancellation sound signal picked up before by the microphone.

Claims 2, 4, 5, 7, 15, and 16, being dependent on claim 1 directly or indirectly, thus too recite structure defining applicants' invention because claim 1 does, and additionally because they contain further limitations not taught by the art.

Independent claim 18 too already recites steps defining applicants' unique contribution to the art. For example, the art does not teach "inputting the signal from the transmission line before the modulator into a signal processor and providing outputs therefrom to a speaker near the microphone to generate a voice cancellation sound which too is picked up by the microphone and delivered as an electrical signal to the transmission line before the modulator and to the modulator to enable it to subtract from the transmission line downstream from the modulator electrical voice cancellation sound signal picked up by the microphone".

Claims 3, 6, 8, 17, 19, and 20 were rejected under 35 USC 103(a) as being unpatentable over Berger et al and Matouk as applied to claims 1, 2, 4, and 5, and further in view of Pongsen (4,006,308). As noted above, Berger and Matouk cannot be combined to anticipate applicants' device, and hence these claims are allowable for the same reasons that their base claims are. Pongsen does not make up for any of the deficiencies of Berger and Matouk. Claims 3, 6, 8, 17, 19, and 20 are also further allowable for the additional limitations contained in them.

Claims 9, 10, 12, and 13 were rejected under 35 USC 103(a) as being unpatentable over Berger and further in view of Matouk. As pointed out above, Berger and Matouk should not be combined to anticipate applicants' device, and even if combined would not anticipate applicants' device without the benefit of applicants' teachings which are reflected in base claim 9. Thus claim 9 requires, inter alia, a signal processor receiving input from a transmission line before a modulator and providing output to a speaker to generate a voice cancellation sound and to the modulator to subtract from the transmission line downstream thereof earlier electrical voice cancellation sound signal picked up by the microphone. Matouk would not be looked to for solution of Berger's deficiencies as he freezes his signal processor when voice is detected, and if incorporated for some reason anyway, would impair the operation of Berger's proposed function.

Of course claims 10, 12, and 13, dependent directly or indirectly on claim 9, are further allowable for the limitations contained in them.

Claims 11 and 14 were rejected under 35 USC(a) as being unpatentable over Berger and Matouk and further in view of Pongsen. Since Berger and Matouk, (as noted above) should not be combined to anticipate applicants' device, nor if combined anticipate applicants' device without the benefit of applicants' teachings which are reflected in base claim 9 and intermediate base claims, they are allowable therewith. Of course the claims are further allowable for the limitations contained in them.

Specific Response to Certain Examiner Arguments

In the first indented paragraph of his Item 7, the Examiner states: "... The Berger reference relies on the teachings of Matouk to implement the processor that receives an input from the transmission line before the modulator. The Berger reference processes the waveform received from telephone mouthpiece 13 (Berger: Fig. 2)." Applicants believe that the Examiner mis-characterizes Berger. Berger does not "further process" the waveform sent over path 21 for remote transmission 22. He does react to the waveform to create a voice cancellation signal. But that is not further processing of the waveform: the waveform stays the same!

Further analyzing Item 7, the Examiner states: "The Berger reference relies on the teachings of Matouk to implement the processor that receives an input from the transmission line before the modulator. The Berger reference processes the waveform received from telephone mouthpiece 13 Matouk teaches providing further processing in that the detected noise is adaptively filtered and then subtracted out ... using modulator 52. Since Berger disclose that the processor receives a signal from the telephone mouthpiece ... , then the combination of Berger and Matouk would have the processor still receiving the signal from the telephone mouthpiece (in order to process and send it to the cancellation speakers). This mouthpiece is analogous to microphone 36 (MATOUK: Fig. 3) and as such the processor would receive an input from the transmission line before the modulator 52."

As observed above, it is not true that Berger processes the waveform received from the telephone mouthpiece 13. It is true that Matouk provides further processing in that the detected noise is adaptively filtered and then subtracted out using modulator 52, but only when ""there is a pause or there is no voice being picked up" (col. 4. lines 12 and 13). Clearly, further modification is necessary to the teachings of Berger and Matouk to achieve the device of applicants.

However, to expedite the prosecution of this application, applicants have amended the independent claims to recite more clearly an applicants' device difference over the art, specifically that the corrections are taking place concurrently with the voice. Thus independent claim 1 now specifies "a signal processor receiving input from the

transmission line before the modulator and providing output concurrently to the speaker to generate a voice cancellation sound and to the modulator to subtract from the transmission line downstream thereof the electrical voice cancellation sound signal picked up before by the microphone".

Independent claim 9 now specifies "a signal processor receiving input from the transmission line before the modulator and providing output concurrently to the speaker to generate a voice cancellation sound and to the modulator to subtract from the transmission line downstream thereof earlier electrical voice cancellation sound signal picked up by the microphone".

Independent claim 18 now specifies "inputting the signal from the transmission line before the modulator into a signal processor and providing outputs concurrently therefrom to a speaker near the microphone to generate a voice cancellation sound which too is picked up by the microphone and delivered as an electrical signal to the transmission line before the modulator and to the modulator to enable it to subtract from the transmission line downstream from the modulator electrical voice cancellation sound signal picked up by the microphone".

And, of course, all of the dependent claims therefore now incorporate the principle of "concurrent " action.

The Examiner disagreed with the applicants' page 13 argument that "Matouk does not teach a system of active noise suppression in which environmental noise at a caller's telephone is detected and a cancellation signal is generated by a processor to subtract the noise from the signal received by the recipient of the call". Applicant still believes his statement is correct. Matouk adds the inverse of a signal of the local noise to a received signal from a remote person to neutralize the recipient's ambient noise (col. 4, lines 52-63).

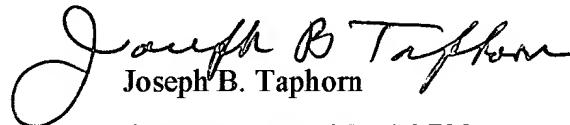
The Examiner also objected to applicant's Page 13 argument "that the combination of Matouk and Berger would destroy the functionality of Berger". Applicants wish to note that Matouk does not sense ambient noise during speech and hence would not be effective to remove the cancellation voice corruption during speech.

Applicants submit that modifying Berger in the light of Matouk does not yield applicants' device, and that the claims, with the addition of "concurrently" now more clearly set forth applicants' inventive contribution to the art. Applicants believe they have made a meritorious contribution to the art, and that the claims recite this contribution.

Wherefore this application is deemed to have been placed in condition for allowance, which favorable action at an early date is earnestly solicited.

The Examiner made the 5/27/04 Action FINAL. Applicant urges withdrawal of the finality of the Action. Genuine questions as to the operability of the references existed, and are only now being resolved. In view of the new grounds of rejection and the operational issues raised, a FINAL Action was premature.

Respectfully submitted,

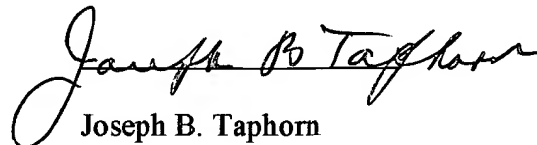

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